CLAIMS

1. An apparatus for imparting disruptive forces onto a target surface, comprising:

a housing;

a source of electromagnetic energy coupled to the housing and constructed to focus or direct electromagnetic energy into an interaction zone in close proximity to the target surface;

at least one contacting leg coupled to the housing, the at least one contacting leg being constructed to contact a surface and to space the source of electromagnetic energy from the target surface when the electromagnetic energy is being focused or directed into the interaction zone; and

a fluid output constructed to place fluid into the interaction zone, simultaneously with the focusing or directing of electromagnetic energy into the interaction zone, the electromagnetic energy from the source of electromagnetic energy being absorbed by the fluid in the interaction zone, and the absorption of the electromagnetic energy by the fluid causing the fluid to expand and impart disruptive forces onto or within the target surface.

2. The apparatus as set forth in Claim 1, wherein:

the surface contacted by the at least one contacting leg is in close vicinity to the target surface; and

the fluid output comprises a moisture output constructed to place moisture into the interaction zone, simultaneously with the focusing or directing of electromagnetic energy into the interaction zone, the electromagnetic energy from the source of electromagnetic energy being absorbed by the moisture in the interaction zone, and the absorption of the electromagnetic energy by the moisture causing the moisture to expand and impart disruptive forces onto or within the target surface.

3. The aparatus as set forth in Claim 2, wherein the surface contacted by the at least one contacting leg is the target surface.

4. The apparatus as set forth in Claim 2, wherein theat least one contacting leg comprises a plurality of contacting legs, each of the contacting legs having a proximal end and a distal end, and the distal ends of the contacting legs having rounded feet.

5. The apparatus as set forth in Claim 4, wherein the rounded feet comprise ball rollers.

6. The apparatus as set forth in Claim 2, wherein the apparatus further comprises a suction source.

7. The apparatus as set forth in Claim 6, wherein both the moisture output and the suction source are disposed in the at least one contacting leg.

8. The apparatus as set forth in Claim 2, wherein the at least one contacting leg comprises a hemispherical shape to surround the interaction zone when the at least one contacting leg is in contact with the target surface.

9. The apparatus as set forth in Claim 2, wherein:

the at least one contacting leg comprises a concave shape to surround the interaction zone when the at least one contacting leg is in contact with the target surface:

the apparatus further comprises a suction source; and

the moisture output and the suction source are both disposed in the at least one contacting leg so that the moisture output directs moisture in a direction generally toward the suction source, and so that the interaction zone is disposed generally between the moisture output and the suction source.

10. The apparatus as set forth in Claim 2, wherein the moisture output comprises an atomizer.

11. The apparatus as set forth in Claim 2, wherein the source of electromagnetic energy is constructed to deliver a peak concentration of electromagnetic energy into the interaction zone, the peak concentration of electromagnetic energy being greater than a concentration of electromagnetic energy delivered onto the target surface.

12. The apparatus as set forth in Claim 11, wherein the source of electromagnetic energy comprises a fiber tip which terminates at a boundary of the interaction zone.

13. The apparatus as set forth in Claim 12, wherein the source of electromagnetic energy comprises at least one reflector and a window.

14. The apparatus as set forth in Claim 12, wherein the fiber tip can be readily removed and replaced by a hand of a user.

15. The apparatus as set forth in Claim 12, wherein the fiber tip terminates at a distance of between 3 and 5 millimeters from the target surface when the at least one contacting leg is in contact with the target surface.

16. The apparatus as set forth in Claim 2, wherein a flow of moisture from the moisture output can be controlled at any position between a maximum flow and no flow at all.

17. The apparatus as set forth in Claim 2, wherein:

the electromagnetic energy from the source of electromagnetic energy is highly absorbed by the moisture in the interaction zone;

the interaction zone is substantially bounded in a dimension, measured in a direction parallel to a direction of propagation of the electromagnetic radiation, that is no larger than about 5 mm from the target surface when the at least one contacting leg is contacting the target surface; and

an amount of moisture extending beyond the 5 mm boundary of the interaction zone in a path of the electromagnetic radiation is negligible, so that an amount of absorption of the electromagnetic radiation by the moisture beyond the 5 mm boundary does not detectably alter the cutting power of the apparatus, compared to a cutting power that the apparatus would have if no moisture extended beyond the 5 mm boundary of the interaction zone.

18. The apparatus as set forth in Claim 2, wherein the electromagnetic energy from the source of electromagnetic energy has a wavelength which is highly absorbed by the moisture in the interaction zone.

19. The apparatus as set forth in Claim 2, wherein the electromagnetic energy from the source of electromagnetic energy has a wavelength which is not highly absorbed by the moisture in the interaction zone.

20. The apparatus as set forth in Claim 2, wherein:

the source of electromagnetic energy comprises a fiber optic having an output end; and

the moisture output is constructed to output moisture onto the output end of the fiber optic.

21. The apparatus as set forth in Claim 2, wherein the disruptive forces, as distinguished from purely thermal cutting forces, generate cutting forces suitable for cutting or ablating skin placed within or adjacent to the interaction zone.

22. The apparatus as set forth in Claim 21, wherein the electromagnetic energy comprises laser energy from one of an Er, Cr:YSGG solid state laser having a wavelength of about 2.78 microns and an Er:YAG solid state laser having a wavelength of about 2.94 microns.

23. The apparatus as set forth in Claim 2, wherein the moisture from the moisture output comprises water.

24. The apparatus as set forth in Claim 2, wherein the moisture output comprises a mixing chamber.

25. The apparatus as set forth in Claim 24, wherein the moisture from the moisture output comprises water.

26. The apparatus as set forth in Claim 2, wherein the at least one contacting leg comprises a cylindrical shape to surround the interaction zone when the at least one contacting leg is in contact with the target surface.

27. The apparatus as set forth in Claim 2, wherein the at least one contacting leg comprises an enclosure with an oval-shaped edge for contacting and surrounding the target surface.

28. The apparatus as set forth in Claim 2, wherein the at least one contacting leg comprises an enclosure with a rectangular-shaped edge for contacting and surrounding the target surface.

29. A method of imparting disruptive forces onto a target surface, comprising:

focusing or directing electromagnetic energy into an interaction zone above the target surface;

simultaneously placing moisture into the interaction zone so that at least portions of the electromagnetic energy in the interaction zone are highly absorbed by the moisture in the interaction zone; and

focusing or directing electromagnetic energy into the interaction zone without any simultaneous placement of moisture above the plurality of points.

30. The method as set forth in Claim 29, wherein the step of simultaneously placing moisture into the interaction zone comprises a step of simultaneously placing moisture comprising an anesthetic and a vasal constrictor into the interaction zone.

31. A method of imparting disruptive forces onto a target surface. comprising:

focusing or directing electromagnetic energy into an interaction zone above the target surface;

simultaneously placing first amounts of moisture into the interaction zone;

focusing or directing electromagnetic energy into the interaction zone above the target surface; and

simultaneously placing second amounts of moisture into the interaction zone, the second amounts of moisture being less than the first amounts of moisture.

32. The method as set forth in Claim 31, wherein the step of simultaneously placing first amounts of moisture into the interaction zone comprises a step of simultaneously placing first amounts of moisture comprising an anesthetic and a vasal constrictor into the interaction zone.

33. An apparatus for imparting disruptive forces onto a target surface, comprising:

a housing;

a source of electromagnetic energy coupled to the housing and constructed to focus or direct electromagnetic energy into an interaction zone in close proximity to the target surface;

at least one contacting leg coupled to the housing, the at least one contacting leg being constructed to contact the target surface and to space the source of electromagnetic energy from the target surface when the electromagnetic energy is being focused or directed into the interaction zone; and

a moisture output constructed to simultaneously place moisture into the interaction zone, the electromagnetic energy from the source of electromagnetic energy being absorbed by the moisture in the interaction zone, and the absorption of the electromagnetic energy by the moisture causing the moisture to expand and impart disruptive forces onto the target surface.

34. An apparatus for imparting disruptive forces onto a target surface, comprising:

a housing;

a source of electromagnetic energy coupled to the housing and constructed to focus or direct electromagnetic energy into an interaction zone in close proximity to the target surface;

at least one contacting leg coupled to the housing, the at least one contacting leg being constructed to contact a surface and to space the source of electromagnetic energy from the target surface when the electromagnetic energy is being focused or directed into the interaction zone; and

a moisture output constructed to simultaneously place moisture into close proximity of the interaction zone simultaneously with the focusing or directing of electromagnetic energy into the interaction zone.

35. The apparatus as set forth in Claim 34, wherein the target surface contacted by the at least one contacting leg is in close proximity to the target surface